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| 09/265,070 | 03/09/1999 | YOICHI YAMAGISHI | 1232-4519 | 4078 |

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| EXAMINER |
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AGGARWAL, YOGESH K

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| ART UNIT | PAPER NUMBER |
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2615

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 09/265,070 | Applicant(s) YAMAGISHI ET AL. | |
| | Examiner Yogesh K Aggarwal | Art Unit 2615 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) ¹⁷~~1-21,26,31-35,40,45-49,54~~ and 59-71 is/are pending in the application.
 4a) Of the above claim(s) 1-16 and 60-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-21,26,31-35,40,45-49,54,59,69-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments filed 09/14/2004 have been fully considered but they are not persuasive.

Examiner's response:

The amendment to independent claims 17, 31 and 45 are noted. However, the added limitations do not rise to a level, which would have caused new grounds of rejection for the reasons set forth below. The only issue raised is the added limitations of "selecting means for making the user selects whether or not to continue an image sensing operation when said optical system condition change instruction means outputs the signal to change the optical system condition" in the independent claims 17, 31 and 45. Claims 17, 31 and 45 stand or fall together, therefore claim 17 will be addressed as being representative of all claims. The Examiner notes that it would be inherent that after a focusing operation (optical system condition change instruction means indicating that the image sensing lens is operated by a user) is performed as taught in Okauchi et al. the user can perform a refocusing operation by pressing the object selection button 29 again to perform the focusing operation based upon a new focus area and the initial focus area (col. 23 lines 47-54). The user will have the option (selecting means) of performing refocusing after the object or camera moves. Therefore Okauchi inherently teaches "selecting means for making the user selects whether or not to continue an image sensing operation when said optical system condition change instruction means outputs the signal to change the optical system condition".

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 17-21, 26, 31-35, 40, 45-49, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389, 179, as disclosed in the information Disclosure Statement, in view of Okauchi et al, U.S. Patent 5,864,360.

[Claim 17]

Katayama et al teaches an image processing apparatus (col. 1, lines 7-8) having a function of storing a plurality of sensed still images in a storage means (col. 1, lines 11-12, and col. 9, lines 21-24), comprising image sensing means (image sensing unit 110) comprising an image sensing lens 101 which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17),

storage means (image memory 130) for storing a plurality of images sensed by said image sensing means (image sensing unit 110) in association with each other (col. 9, lines 21-29, and col. 1, lines 11-12), and

control means (signal processing unit 190) for controlling to inhibit the optical system condition of said image sensing lens from changing when the release button is depressed to its first stroke position (col. 12, lines 24-43).

Katayama et al further teaches that when the release button is then depressed to its second control position, image data is sensed and stored to memory (col. 12, line 44-col. 13, line 4).

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Katayama teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59).

Official Notice is taken of the fact that it is notoriously well known in the art to lock in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Therefore taking the combined teachings of Katayama and Official Notice, it would have been obvious to one skilled in the art to have locked in the focal length when capturing images for a panoramic image in order to obtain images that can be synthesized by mere translation.

Katayama in view of Official Notice fails to teach that the optical system condition change instruction means for outputting a signal indicating that the optical system of said image sensing lens is operated by a user; selecting means for making the user selects whether or not to continue an image sensing operation when said optical system condition change instruction means outputs the signal to change the optical system condition; nor does Katayama teach

the finishing of an associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored, and for controlling to stop changing of the optical system condition when the user selects to continue the image sensing operation.

Okauchi teaches an object selection button 29 on the camera main body (col. 5, lines 36-39), and that this button is depressed again to perform a focusing operation when an object

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moves and a re-focusing operation is required (col. 23, lines 47-54). The optical system condition change instruction means for outputting a signal indicating that the optical system of said image sensing lens is operated by a user is inherently taught.

The Examiner notes that it would be inherent that after a focusing operation (optical system condition change instruction means indicating that the image sensing lens is operated by a user) is performed as taught in Okauchi et al. the user can perform a refocusing operation by pressing the object selection button 29 again to perform the focusing operation based upon a new focus area and the initial focus area (col. 23 lines 47-54). The user will have the option (selecting means) of performing refocusing after the object or camera moves.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of restarting the focusing and Official Notice to lock in the focal length when capturing images for a panoramic image when the object has moved taught by Okauchi et al to make an apparatus that finishes associating captured images with one another when the image sensing apparatus detects an out-of-focus state and sends a command to change the optical system condition by refocusing. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

[Claim 18]

Okauchi teaches that the optical system condition is a focal length of said image sensing lens (col. 15, line 57-col. 18, line 25, col. 23, lines 47-50).

[Claim 19]

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Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

[Claim 20]

Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high- resolution image by synthesizing the plurality of images sensed by performing the pixel shift (Figs. 6 and 15, col. 10, lines 34-48, col. 19, line 10-col. 21, line 3).

[Claim 21]

Katayama, Official Notice and further in view of Okauchi teach an apparatus that captures images of the same focal length for synthesizing a panoramic image, and that the apparatus restarts a hill-climbing focusing operation when the apparatus detects object movement. See claim 17. Official Notice is taken of the fact that it is notoriously well known to one skilled in the art to start sensing a plurality of new images to be stored in association with each other after the associating operation of images is finished. One of ordinary skill would have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

[Claim 26]

Katayama et al teaches control means (signal processing unit 190) for controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

[Claim 31]

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Katayama et al teaches a control method for an image processing apparatus (col. 1, lines 7-8) comprising image sensing means (image sensing unit 110) comprising an image sensing lens 101 which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17), storage means (image memory 130) for storing a plurality of images sensed by said image sensing means (image sensing unit 110) in association with each other (col. 9, lines 21-24, 25-29, and col. 1, lines 11-12),

optical system condition change instruction means (in-focus detector 142) for outputting an instruction for changing the optical system condition of said image sensing lens (col. 11, lines 54-67-col. 12, lines 1-11).

Katayama further teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59).

Official Notice is taken of the fact that it is notoriously well known in the art to lock in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Therefore taking the combined teachings of Katayama and Official Notice, it would have been obvious to one skilled in the art to have locked in the focal length when capturing images for a panoramic image in order to obtain images that can be synthesized by mere translation.

Katayama in view of Official Notice fails to teach that upon detecting an indication that the optical system is operated by a user, and

selecting means for making the user select whether or not to continue an image sensing operation when said optical system condition change instruction means outputs the signal to

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change the optical system condition and the step of finishing an associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

Okauchi et al teaches that the focusing point evaluation value is continually monitored such that when an object changes, a hill-climbing focusing operation restarts (col. 15, line 57-col 18, line 25, col. 23, lines 47-50).

The Examiner notes that it would be inherent that after a focusing operation (optical system condition change instruction means indicating that the image sensing lens is operated by a user) is performed as taught in Okauchi et al. the user can perform a refocusing operation by pressing the object selection button 29 again to perform the focusing operation based upon a new focus area and the initial focus area (col. 23 lines 47-54). The user will have the option (selecting means) of performing refocusing after the object or camera moves.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of continually monitoring the in-focus state of the subject and restarting the focusing and Official Notice to lock in the focal length when capturing images for a panoramic image when the object has moved taught by Okauchi et al to make a control method that comprises the steps of finishing an association of captured images with one another when the image sensing apparatus detects an out-of-focus state and sending a command to change the optical system condition by performing

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a hill-climbing focusing operation. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

[Claim 32]

Katayama et al teaches that the optical system condition is a focal length of said image sensing lens (col. 11, line 54-col. 12, lines 8, 19-26).

[Claim 33]

Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

[Claim 34]

Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high- resolution image by synthesizing the plurality of images sensed by performing the pixel shift (Figs. 6 and 15, col. 10, lines 34-48; col. 19, line 10-col. 21, line 3).

[Claim 35]

Katayama in view of Okauchi teach an apparatus that captures images of the same focal length for synthesizing a panoramic image, and that the apparatus restarts a hill-climbing focusing operation when the apparatus detects object movement. See claim 31. Official Notice is taken of the fact that it is well known in the art to start sensing a plurality of new images to be stored in association with each other after associating operation of images is finished. Therefore taking the combined teachings of Katayama, Official Notice and Okauchi, it would have been obvious to

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one skilled in the art to have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

[Claim 40]

Katayama et al teaches control means (signal processing unit 190) that perform the step of controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

[Claim 45]

Katayama et al teaches an electronic camera system 100 comprising a computer that operates in accordance with pre-set programs (col. 9, lines 19-21). The storage medium that stores the coded programs for executing control over the camera and its processes is inherently taught.

Katayama et al teaches a control method for an image processing apparatus (col. 1, lines 7-8) comprising image sensing means (image sensing unit 110) comprising an image sensing lens 101 which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17), storage means (image memory 130) for storing a plurality of images sensed by said image sensing means (image sensing unit 110) in association with each other (col. 9, lines 21-24, 25-29, and col. 1, lines 11-12), and

optical system condition change instruction means (in-focus detector 142) for outputting an instruction for changing the optical system condition of said image sensing lens (col. 11, lines 54-58, 67-col. 12, lines 1-11).

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Katayama teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59).

Official Notice is taken of the fact that it is notoriously well known in the art to lock in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Therefore taking the combined teachings of Katayama and Official Notice, it would have been obvious to one skilled in the art to have locked in the focal length when capturing images for a panoramic image in order to obtain images that can be synthesized by mere translation.

Katayama in view of Official Notice fails to teach that upon detecting an indication that the optical system is operated by a user, and

selecting means for making the user select whether or not to continue an image sensing operation when said optical system condition change instruction means outputs the signal to change the optical system condition and the step of finishing an associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

Okauchi et al teaches that the focusing point evaluation value is continually monitored such that when an object changes, a hill-climbing focusing operation restarts (col. 15, line 57-col. 18, line 25, col. 23, lines 47-50).

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The Examiner notes that it would be inherent that after a focusing operation (optical system condition change instruction means indicating that the image sensing lens is operated by a user) is performed as taught in Okauchi et al. the user can perform a refocusing operation by pressing the object selection button 29 again to perform the focusing operation based upon a new focus area and the initial focus area (col. 23 lines 47-54). The user will have the option (selecting means) of performing refocusing after the object or camera moves.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of continually monitoring the in-focus state of the subject and Official Notice to lock in the focal length when capturing images for a panoramic image and restarting the focusing when the object has moved taught by Okauchi et al to make a control method that comprises the steps of finishing an association of captured images with one another when the image sensing apparatus detects all out-of-focus state and sending a command to change the optical system condition by performing a hill-climbing focusing operation. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

[Claim 46]

Katayama et al teaches that the optical system condition is a focal length of said image sensing lens (col. 11, line 54-col. 12, lines 8, 19-26).

[Claim 47]

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Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

[Claim 48]

Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift (Figs. 6 and 15, col. 10, lines 34-48, col. 19, line 10-col. 21, line 3).

[Claim 49]

Katayama in view of Okauchi teach a storage medium, wherein the control program comprises the steps of capturing images of the same focal length for synthesizing a panoramic image, and restarting a hill-climbing focusing operation when the apparatus detects object movement. See claim 45. Official Notice is taken of the fact that it is notoriously well known to one skilled in the art to start sensing a plurality of new images to be stored in association with each other after the associating operation of images is finished. One of ordinary skill would have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

[Claim 54]

Katayama et al teaches a control program comprising the steps of controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

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4. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389, 179, in view of Okauchi et al, U.S. Patent 5,864,360, and further in view of Arai et al, U.S. Patent 5,600,371, disclosed in the Information Disclosure Statement.

[Claim 59]

Katayama in view of Okauchi teach the apparatus according to the limitations of claim 17. See above. Katayama in view of Okauchi do not teach that the change in the optical system condition is the attachment/detachment of the optical system. Arai et al teaches that when the lens is detached from the camera, the driving means of the lens is stopped, thereby prevented from outputting a signal to change the optical system condition (col. 11, lines 56-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate an alert when the image-sensing lens has been detached from the lens. One of ordinary skill would have been motivated to make such a modification to cut off power from the system when image sensing can no longer be performed properly to conserve power.

5. Claims 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389, 179, in view of Okauchi et al, U.S. Patent 5,864,360.

[Claim 69]

Katayama in view of Okauchi teach the apparatus of claim 17. See above. Katayama in view of Okauchi teach that when the scene becomes out of focus, a hill-climbing focusing operation begins again, and a new set of images are taken. See above. Katayama in view of Okauchi do not teach an alerting means for alerting upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means. The examiner takes Official Notice that it is well-known in the art to let the

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user know which set of images will be grouped together for a panoramic image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to alert the user upon reception of the instruction for changing the optical system condition of the image-sensing lens. One of ordinary skill would have been motivated to make such a modification to alert the user that previous images will be discarded and the next images to be captured shall constitute the panoramic image.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5:30PM.

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7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Thai Tran can be reached on (703) 305-4725. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA

February 3, 2005


TUAN HO
PRIMARY EXAMINER